DEAS 294: 2020

DRAFT EAST AFRICAN STANDARD

Scouring powder — Specification

EAST AFRICAN COMMUNITY

Second Edition 2020

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS) and other deliverables. The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards and other deliverables are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 074, *Surface active agents*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

This second edition cancels and replaces the first edition (EAS 294:2001), which has been technically revised.

DRAFT EAST AFRICAN STANDARD **DEAS 294:2020**

Scouring powder - Specification

1 Scope

This Draft East African Standard specifies requirements sampling and test methods for household detergent scouring powder.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 862, *Surface active agents — Vocabulary*

ISO 684, *Analysis of soap — Determination of total free alkali*

ISO 2271, *Surface active agents -- Detergents -- Determination of anionic-active matter by manual or mechanical direct two-phase titration procedure*

ISO 2268, *Surface active agents (non-ionic) — Determination of polyethylene glycols and non-ionic active matter (adducts) — Weibull method*

ISO 685, *Analysis of soaps — Determination of total alkali content and total fatty matter content*

3. Terms and definitions

For the purposes of this Draft Standard, definition given in ISO 862 and the following shall apply

3.1

scouring powder

household cleaning product consisting essentially of a mixture of finely divided abrasive, suitable additive and builders together with an active ingredient which may be an anionic or non-ionic or a soap synthetic detergent or their mixture

3.2

product unit

unit of the final product, packed in a plastic or any other suitable container

3.3

lot

number of product units of the same size, type and style which contains scouring powder manufactured from a single batch

4 Requirements

4.1 General requirements

4.1.1 Scouring powders shall be of the following:

a) With no bleaching agent
b) With bleaching agent (chlorine)

4.1.2 The scouring powder shall consist of abrasive e.g. powdered hard natural silicate rock, or felspar, calcite, diatomite or any other suitable abrasive, together with a surface active ingredient, which shall be pure neutral soap, and any suitable synthetic detergent with or without a bleaching agent, dye or perfume.

4.1.3 All ingredients/materials used shall be non-injurious to heath.

4.1.4 The scouring powder shall be in the form of a uniform free-flowing powder, free from lumps and visible impurities.

4.1.4 The scouring powder, both as received and when mixed in hot water, shall possess a pleasant odour.

4.1.5 The scouring powder with bleaching agent (containing chlorine) shall contain at least 0.3 % (m/m) of available chlorine as tested according to Annex A

4.2 Specific requirements

The scouring powder shall also comply with the requirements of the Table 1 below.

Table 1 — Specific requirements of Scouring powder

S/No:	Characteristic	Requirement	Method of test
i.	Surface active content % (m/m), min		ISO 2268 for non-ionic and ISO 2271 for anionic matter ISO 685 for fatty matter
	a) as alkylaryl sulphonate,	2.0	
	b) as total fatty matter	3.0	
ii.	Volatile matter at 105 ºC ± 2 ºC % (m/m), max	3.0	Annex B
iii.	Free alkali content (as NaOH), % (m/m), max	1.0	ISO 684
iv.	Content of alkali salts content (as anhydrous Na_2CO_3) % (m/m)	1.0 – 10.0	Annex C
v.	Matter insoluble in water, % (m/m), min	80	Annex D
vi.	Fineness of water-insoluble matter, % (m/m		Annex E
	a) Retained on 250 µm sieve, max	0.1	
	b) Retained on 150µm sieve, max	5.0	
	c) Retained on 75 µm sieve, max	15	
vii.	pH of 1 % solution, max	11.0	Annex F

5 Packing and labelling

5.1 Packing

Scouring powder shall be packed in plastic or any other suitable airtight containers which will protect the material from caking into hard lumps.

5.2 Labelling

Each container shall be legibly and indelibly labelled either in English, Kiswahili or French or combination or any other language as agreed between the manufacturer and supplier with the following information:

a) the name of the product
b) the registered trade mark if any;
c) the net mass in grams;
d) the name and address of the manufacturer;
e) country of origin
f) the code number or batch number;
g) dates of manufacture and best before date
h) Instructions for use and warning instructions “not to be handled with open wounds, and cuts”; and
i) the available chlorine content, as a percentage by mass, for scouring powder with bleaching agent (chlorine).

6 Sampling and compliance with the standard

6.1 Sampling

Three containers shall be chosen at random from a lot.

6.1.1 *Composite sample*

From the containers, taken in accordance with 6.1, take enough scouring powder to provide a composite sample of total mass at least 600 g. Mix the powder thoroughly and immediately store in a dry and air-tight container.

6.1.2 *Test sample*

Test for checking the requirement for surface active ingredient of the material shall be conducted on individual samples and tests for the determination of all the remaining characteristics shall be conducted on the composite sample.

6.2 Compliance with the standard

The lot shall be deemed to comply with the requirements of the standard if the composite sample satisfies the specified requirements.

Annex A
(normative)

Determination of available chlorine

A.1 Principle

The available chlorine is determined iodometrically by titration with standard thiosulphate solution.

A.2 Reagents

A.2.1 *Acetic acid, glacial*

A.2.2 *Potassium iodide,* 3 % (m/V) aqueous solution.

A.2.3 *Sodium thiosulphate,* 0.1 M standard volumetric solution.

A.2.4 *Starch indicator solution,* 0.5 % (m/V) aqueous solution.

A.3 Procedure

Weigh to the nearest 0.01 g, 30 to 35 g of the composite sample in a 500 ml conical flask containing 250 ml of potassium iodide solution. Stopper the flask and stir for 5 min on a magnetic stirrer. Add 15 ml of glacial acetic acid. (Caution: acid to be added with extra care to avoid an excessive rate of carbon dioxide evolution when the formulation contains a carbonate). Titrate with sodium thiosulphate solution to a light-yellow colour while stirring continuously. Add 0.5 ml of starch indicator solution and titrate slowly until the colour disappears. Carry out the determination in duplicate.

A.4 Calculation

The available chlorine, expressed as Cl, in percentage by mass is given by the formula;

$$\frac{M \times V \times 3.546}{m_0}$$

Where

mo is the mass, in grams, of the sample;
M is the molarity of sodium thiosulphate solution;
V is the volume, in cubic centimetres, of sodium thiosulphate use.

Annex B
(normative)

Determination of volatile matter

B.1 Principle

A known mass of composite sample is oven-dried to constant mass.

B.2 Apparatus

B.2.1 *Porcelain or silica dish*, 6 to 8 cm diameter and 2 to 4 cm depth

B.2.2 *Desiccator*, containing an efficient desiccant.

B.2.3 *Air-Oven*, Electrically heated

B.2 Procedure

Weigh to the nearest 0.001 g, 5 g or the sample in a tarred dish, which has been previously dried and cooled. Heat the dish and its content in an oven at 105 ºC ± 2 ºC for an hour. Cool in a desiccator and weigh. Repeat the operation of heating, cooling and weighing until the difference in mass between two successive weighings is less than 0.01 g. Carry out this determination in duplicate and take the mean of the results.

B.3 Calculation

The volatile matter content is given, as a percentage by mass, by the formula:

$$\frac{m_1 - m_2}{m_0} \times 100$$

where

m_0 is the mass, in grams, of sample used;
$m_1$is the mass, in grams, of sample and dish before heating;
m_2 is the mass, in grams, of sample and dish after heating.

Annex C
(normative)

Determination of alkaline salt

C.1 Principle

After extracting the composite sample with hot neutralised ethanol, the residue is extracted with a known volume of water which is titrated with hydrochloric acid solution.

C.2 Reagents and materials

C.2.1 *Ethanol*, 95 % (V/V) solution, free from carbon dioxide. Reflux this solution for 5 min, cool to ambient temperature and neutralise with the ethanolic potassium hydroxide solution (C.2.2) in the presence of 4 drops of phenolphthalein solution (C.2.3) for 200 mL of ethanol.

C.2.2 *Potassium hydroxide*, 0.1M ethanolic standard volumetric solution.

C.2.3 *Phenolphthalein,* solution of 1 g per 100 ml in 95 % (V/V) ethanol.

C.2.4 *Hydrochloric acid*, 0.25 M standard volumetric solution.

C.2.5 *Screened methyl orange indicator.* Dissolve 0.2 g of methyl orange and 0.28 g of xylene cyanole FF in 100 cm' of freshly boiled 50% (V/V) ethanol and filter.

C.2.4 *Glass fibre filter*
A glass fibre filter having about the same retention as a Whatman No 5-cellulose filter and about the same speed as a Whatman No. 4 cellulose filter.

C.3 Procedure

Weigh to the nearest 0.001 g, 5 g of the sample into a 250 ml beaker, Add 50 mL of hot ethanol and boil gently for 5 min. Filter the hot solution through the weighed fibre filter in a filter funnel and transfer the residue quantitatively to the filter. Wash the residue with 150 ml of hot ethanol.

Extract the residue on the filter with sufficient boiling water to collect 200 ml of extract. Reserve the extracted residue for the determination of water-insoluble matter (Annex D). To the water extract obtained above add about 0.5 ml of the screened methyl orange indicator and titrate with the standard hydrochloric acid solution until the colour changes from green to grey. Carry out this determination in duplicate.

C.4 Calculation

The alkaline salt content, expressed as a percentage by mass of anhydrous sodium carbonate is given by the formula;

$$\frac{V \times M \times 5.3}{m_0}$$

where

m_0 is the mass, in grams, of sample used;
M is the molarity of the standard hydrochloric acid solution;
V is the volume, in cubic centimetres, of the hydrochloric acid solution used.

Take as the result the arithmetic mean of duplicate determinations.

Annex D
(normative)

Determination of water-insoluble matter

D.1 Principle

The residue obtained after extraction with hot ethanol and boiling water is dried to constant mass.

D.2 Procedure

Dry the residue and the filter, retained from the determination of alkaline salts (C.3), in an oven maintained at 105 ºC ± 5 ºC for 1 h. Cool in a desiccator and weigh. Repeat the operation of heating, cooling and weighing until no further loss in mass occurs. Carry out the determination in duplicate.

D.3 Calculation

The water-insoluble matter content is given, as a percentage by mass, by the formula;

$$\frac{m_1}{m_0} \times 100$$

Where

m_1 is the mass, in grams, of the residue;
m_0 is the mass, in grams, of the sample used (Annex C).

Annex E
(normative)

Determination of fineness of water-insoluble matter

E.1 Principle

The water-insoluble matter content is sieved and the percentage of residue retained on each sieve calculated.

E.2 Apparatus

Sieves, of diameter 100 mm, and of nominal aperture sizes 150 and 250 µm.

E.3 Procedure

Weigh out 20 g of the composite sample into a beaker and add 200 ml of distilled water. Heat on a water bath, with frequent stirring until all the soluble salts are dissolved. Assemble two tared sieves, the 250 gm aperture sieve on top and the 150 gm at the bottom. Pour the mixture on the top sieve and transfer the residue quantitatively to the sieve by washing the beaker several times with hot

water, washing the insoluble matter through the sieves. Continue the washing until the amount of residue on the top sieve appears to remain constant. Dry each sieve and its contents in an oven at 105 ºC + 5 ºC. Allow to cool and weigh each sieve with its residue.

E.4 Calculation

The insoluble matter retained on each sieve is given, as a percentage by mass, of total insoluble matter by the formula;

$$\frac{m_1 \times 10,000}{m_0 \times P}$$

where

m_1 is the mass, in grams, of the insoluble matter on the sieve;
m_0 is the mass, in grams, of the sample used;
P is the percentage of water insoluble matter present in the test sample (Annex C).

Annex F
(normative)

Determination of pH

F.1 Methods

The determination shall be carried out by the electrometric method or by the indicator method in case of dispute the electrometric method shall be adopted.

F.1.1 *Electrometric method*

Determination shall be made by using a pH meter with glass electrode.

Procedure

Prepare a 1% solution (*m/v*) of the material by weighing accurately about 5 g of the material and transfer it to a 150 ml beaker. Add about 50 ml of freshly boiled and cooled distilled water to the beaker and put the beaker on a hot-plate for dissolving the material soluble in water. Continue string with a glass rod to ensure dissolution. Filter through a filter paper into a 100-ml flask. Wash the filter paper with hot water at least four times collection the washings into the filtrate. Cool the solution under a water tap and then add distilled water up to the 100 ml mark.
as in. A.2.1 Determine the pH of the solution using a pH meter.

F.1.2 *Indicator method*

F.1.2.1 *Reagents*

Alizarin yellow R- pH range 10.1 to 12.0 and colour change yellow to orange.

F.1.2.2 *Procedure*

As in F.1.1 Take 10 ml of this solution in a glass test tube and add 0.5 ml of the indicator. Compare the colour produced with a series of buffer tubes on known pH in the range 10.0 to 12.0. Report as pH, the pH of the buffer solution which gives the closest match with the colour produced by the sample.

F.2 Standard calibrated glass discs may also be used for determination of pH.